

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-15 (Canceled)

16. (New) A protein characterized in that it comprises or is constituted by:

- the sequence SEQ ID NO:1,
- or any sequence derived from the sequence SEQ ID NO: 1, in particular by substitution, suppression or addition of one or more amino acids, providing that said derived sequence binds to phosphate,
- or any sequence homologous to the sequence SEQ ID NO: 1, preferable having a homology of at least approximately 80% with the sequence SEQ ID NO: 1, providing that said homologous sequence binds to phosphate,
- or any fragment of one of the sequences defined above, providing that said fragment binds to phosphate, in particular any fragment being constituted by at least approximately 20 contiguous amino acids in the sequence SEQ ID NO: 1.

17. (New) The protein of claim 16, characterized in that it comprises or is constituted by:

- the sequence SEQ ID NO: 2 or SEQ ID NO: 3,
- or any sequence derived from the sequence SEQ ID NO: 2 or SEQ ID NO: 3, in particular by substitution, suppression or addition of one or more amino acids, providing that said derived sequence binds to phosphate,
- or any sequence homologous to the sequence SEQ ID NO: 2 or SEQ ID NO: 3, preferably having a homology of at least approximately 80% with the sequence SEQ ID NO: 2 or SEQ ID NO: 3, providing that said homologous sequence binds to phosphate,
- or any fragment of one of the sequences defined above, providing that said fragment binds to phosphate, in particular any fragment being constituted by at least approximately 20 contiguous amino acids in the sequence SEQ ID NO: 2 or SEQ ID NO: 3.

18. (New) A nucleotide sequence encoding a protein as defined in claim 16.

19. (New) A recombinant vector, in particular plasmid, cosmid, phage or virus DNA, containing a nucleotide sequence encoding a protein as defined in claim 16.

20. (New) The recombinant vector according to claim 19, containing the elements necessary for the expression in a host cell of the polypeptides encoded by a nucleotide sequence encoding a protein, inserted into said vector.

21. (New) A host cell, chosen in particular from bacteria, yeasts, fungi cells, plant cells or mammal cells, said host cell being transformed using a recombinant vector containing a nucleotide sequence encoding a protein as defined in claim 16.

22. (New) A pharmaceutical composition comprising as active ingredient a protein according to claim 16, in combination with a pharmaceutically acceptable vehicle.

23. (New) A pharmaceutical composition, comprising as active ingredient a protein represented by the sequence SEQ ID NO: 2 or SEQ ID NO: 3, in combination with a pharmaceutically acceptable vehicle.

24. (New) The pharmaceutical composition according to claim 22, in which the protein, in particular SEQ ID NO: 2 or SEQ ID NO: 3, is in combination with a variant of the paraoxonase protein, in particular SEQ ID NO: 4, SEQ ID NO. 5,

SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10 or SEQ ID NO: 11.

25. (New) A combination product comprising at least one protein according to claim 16, in particular SEQ ID NO: 2 or SEQ ID NO: 3, and at least one variant of the paraoxonase protein, in particular SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10 or SEQ ID NO: 11, for simultaneous or separate use, or use spread over time, intended for the prophylaxis or treatment of intoxications caused by insecticides or nerve agents such as soman, VX, sarin or tabun.

26. (New) An assay method of the protein according to claim 16, in particular SEQ ID NO: 2 or SEQ ID NO: 3, characterized in that it comprises the following stages:

- rabbit monoclonal antibodies directed against different epitopes of the protein, in particular SEQ ID NO: 2 or SEQ ID NO: 3, are fixed to a plate and the human serum to be analyzed containing said protein is applied to the above-mentioned plate,

- the plate is rinsed and washed,

- antibodies directed against rabbit antibodies marked with peroxidase are applied to the plate over 30 minutes, in order to form a ternary complex between a rabbit monoclonal

antibody, said protein and an above-mentioned antibody directed against a rabbit antibody,

- the plate is rinsed and washed,
- the peroxidase fixed to the plate is reacted with its substrate and the reaction is stopped at the end of 30 minutes with 3,3',5,5'-tetramethylbenzidine,

- the optical density of the product formed in the preceding stage is measured at 450 nm using a spectrophotometer, and comparison of this measurement with a standard curve makes it possible to determine the concentration of the protein, in particular SEQ ID NO: 2 or SEQ ID NO: 3 present in the serum.

27. (New) A method for the prevention or treatment of arthritis or diseases linked to hyperphosphataemia, such as cardiovascular diseases, comprising the administration of a pharmaceutically acceptable amount of a protein according to claim 16, in particular the protein represented by the sequence SEQ ID NO: 2 or SEQ ID NO: 3.

28. (New) A method for the prophylaxis or treatment of intoxications caused by insecticides or nerve agents such as soman, VX, sarin or tabun, or for the treatment of atherosclerosis, comprising the administration of a pharmaceutically acceptable amount of a protein according to

claim 16, in particular the protein represented by the sequence SEQ ID NO: 2 or SEQ ID NO: 3, in combination with a variant of the paraoxonase protein, in particular SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10 or SEQ ID NO: 11.

29. (New) A method for the *in vitro* diagnosis of diseases linked to hyperphosphataemia, comprising the use of the assay method of claim 27, wherein the concentration of protein SEQ ID NO: 2 or SEQ ID NO: 3 as assayed is less than the quantity of this protein normally present in the blood of a healthy individual.

30. (New) A method for the *in vitro* diagnosis of diseases linked to hypophosphataemia, comprising the use of the assay method of claim 27, wherein the concentration of protein SEQ ID NO: 2 or SEQ ID NO: 3 as assayed is greater than the quantity of this protein normally present in the blood of a healthy individual.

31. (New) A method for the *in vitro* diagnosis of an individual's predisposition to diseases linked to hyperphosphataemia, comprising the use of the assay method of claim 27.

32. (New) The method of claim 29, wherein the diseases linked to hyperphosphataemia are cardiovascular diseases, in particular cardiovascular diseases linked to the formation of atheroma plaques.